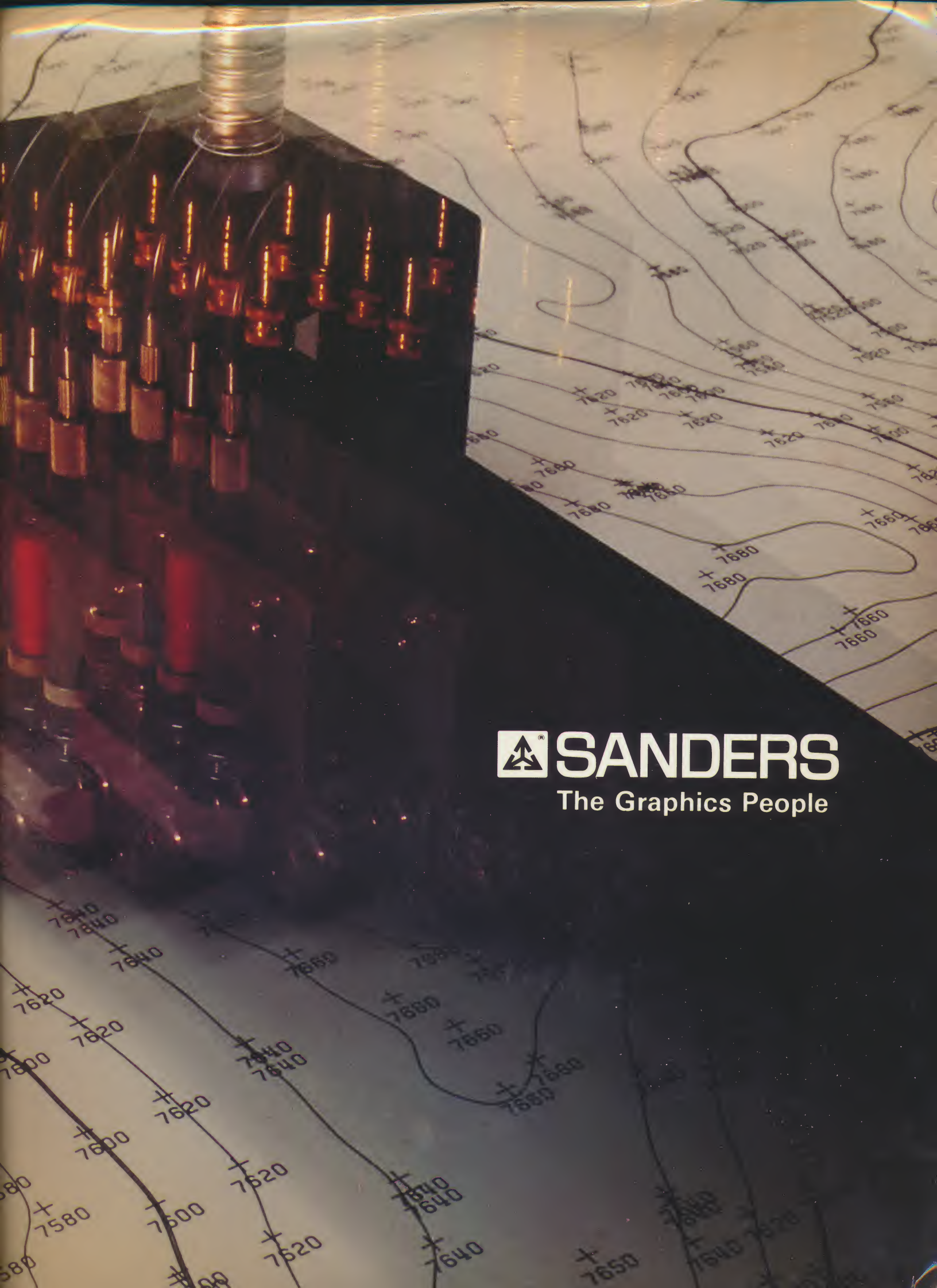




 **SANDERS**
The Graphics People

Worldwide Sales and Service Locations

Federal Systems Group

Huntsville, AL
Oxnard, CA
San Diego, CA
Upland, CA
Warner Robins, GA
Dayton, OH
El Paso, TX
Arlington, VA

International Systems Division

Riyadh, Saudi Arabia
Doha, Qatar

CalComp Group

Domestic

Tempe, AZ
Anaheim, CA
Orange, CA
San Francisco, CA
Santa Clara, CA
Torrance, CA
Englewood, CO
South Windsor, CT
Norcross, GA
Schaumburg, IL
Shawnee Mission, KS
Metairie, LA

Waltham, MA
Westboro, MA
Southfield, MI
Bloomington, MN
St. Louis, MO
Greensboro, NC
Williamstown, NJ
Woodbridge, NJ
Fairport, NY
New York, NY
Cleveland, OH
Dayton, OH

Westerville, OH
Tulsa, OK
Portland, OR
Pittsburgh, PA
Wayne, PA
Austin, TX
Dallas, TX
Houston, TX
Murray, UT
Annandale, VA
McLean, VA
Bellevue, WA

Remarks by

Jack L. Bowers

President, Chief Executive Officer
Sanders Associates, Inc.

and

John A. Ruggiero

Vice President & Treasurer
Sanders Associates, Inc.

at presentations to

Security Analysts

in New York
June 12, 1981

in Chicago
June 23, 1981

Sanders Associates, Inc.
D. W. Highway, South
Nashua, New Hampshire 03061

 **SANDERS**

Financial Review—John A. Ruggiero

As a backdrop for Jack's remarks on Sanders operations, I would like to briefly cover the business side for you.

Financial results for Sanders in 1980 and for nine months continued to set new records.

CONSOLIDATED RESULTS FY 1980			
(\$ MILLIONS)			
	1980	1979	PERCENT INCREASE
NET SALES	281.1	164.0	71%
OPERATING PROFIT	28.9	20.0	45%
INCOME	18.5	14.9	25%
EPS	2.65	2.37	12%
AVERAGE SHARES	6.987	6.253	12%

Looking at 1980 first, net sales for the year, including the CalComp and Talos acquisitions, increased to \$281.1 million from \$164.0 million last year, a 71% increase.

Operating profit increased 45% to \$28.9 million, and income increased 25% to \$18.5 million.

Earnings per share on a higher number of shares outstanding increased 12% to \$2.65 per share—also a new record.

As a result of the CalComp and Talos acquisitions net sales for the year reflected a significantly changed mix from our traditional defense electronics activities.

NET SALES				
(\$ MILLIONS)				
	1980		1980 PRO FORMA	
	SALES	%	SALES	%
GOVERNMENT SYSTEMS & PRODUCTS	162.8	58%	162.8	54%
GRAPHIC SYSTEMS & PRODUCTS	118.3	42%	139.3	46%
TOTAL	281.1	100%	302.1	100%
SALES—1979	164.0		229.3	
PERCENT INCREASE	71%		32%	

As shown on the left side of this chart, government systems and products sales for the year were \$162.8 million or 58% of total sales. Graphic Systems and

Products which includes CalComp, Talos, and our graphic display business was \$118.3 million or 42% of total sales, although CalComp's performance was only included for a nine month period.

The pro forma columns on the right show the effect on sales and sales mix if CalComp results had been included for the full year instead of for only 9 months.

Total pro forma sales of \$302.1 million would have represented a healthy 32% increase over 1979 on a comparable basis, with our graphic products representing a greater percentage of total company sales.

With the inherently faster growth in graphics, which Jack will cover later, we expect our graphics business to continue to increase as a percentage of our total sales.

OPERATING PROFIT			
(\$ MILLIONS)			
	SALES	OPERATING PROFIT	%
GOVERNMENT SYSTEMS & PRODUCTS	162.8	16.1	9.9%
GRAPHIC SYSTEMS & PRODUCTS	118.3	12.8	10.8%
TOTAL 1980	281.1	28.9	10.3%
TOTAL 1979	164.0	20.0	12.2%
PERCENT INCREASE	71%	45%	

Operating profit before interest and taxes amounted to \$28.9 million in 1980, compared with \$20.0 million in 1979, an increase of 45%.

Operating margins as a percent of sales, which is shown in the right hand column, was 10.3% versus 12.2% last year. This reflected the addition of the CalComp activities and a somewhat higher mix of development and preproduction programs in government systems.

On the government side margins of 9.9% remained well above the industry average.

In Graphic Systems and Products, margins reflected CalComp's transition to a lower level of activity following a series of divestitures. Good progress has been made since year-end in improving CalComp's margins and we are targeting for further progress for the balance of 1981 and for 1982.

INCOME			
(\$ MILLIONS)			
	1980	1979	PERCENT INCREASE
OPERATING PROFIT	28.9	20.0	+45%
ROYALTIES & INTEREST INCOME	7.3	8.1	
INTEREST & OTHER EXPENSE	(3.8)	(1.5)	
INCOME BEFORE TAX	32.4	26.6	+22%
INCOME	18.5	14.9	+25%
EPS	2.65	2.37	+12%

The 45% increase in operating income was offset somewhat by lower royalties and interest income and higher interest expense and non-recurring costs associated with the CalComp acquisition.

As a result, the increase in after tax income was 25%, with earnings per share of \$2.65, up 12% on about 12% higher shares.

AVERAGE SHARES OUTSTANDING			
(IN THOUSANDS)			
	FY 1979	FY 1980	PERCENT INCREASE
YEAR AVERAGE	6,253	6,987	12%
YEAR END	6,103	7,777	27%
	FY 1980	FY 1981	
1ST QUARTER	6,231	7,915	27%
2ND QUARTER	6,313	7,948	26%
3RD QUARTER	7,212	7,950	10%
4TH QUARTER	7,898	7,980	1%
YEAR AVERAGE	6,987	7,950	14%

It is worth noting here that outstanding shares in 1980 increased 27% or 1.7 million shares due to an 800,000 share equity offering and shares issued for CalComp. Since these shares were issued in the third quarter the time weighting effect reduced the increase in average outstanding shares to 12% for the year.

This is significant as it affects 1981. The balance of the increase will be reflected on a full year basis in the current year. However, the early quarter comparisons of earnings have reflected an average 20% increase in shares for the nine month period. This has had an offsetting influence on the good net income gains achieved.

The nine month results are shown on this next chart.

SANDERS ASSOCIATES, INC. NINE MONTHS RESULTS FY 1981			
(\$ MILLIONS)	9 MOS APR 81	9 MOS APR 80	PERCENT INCREASE
NET SALES	251.7	194.7	29%
PRETAX OPERATING INCOME	28.4	19.2	48%
% SALES	11.3%	9.8%	15%
ROYALTIES & INTEREST INCOME	2.6	5.7	
INTEREST EXPENSE	(1.7)	(2.5)	
OTHER INCOME (EXPENSE)	(1.0)	(.4)	
INCOME TAXES	(13.0)	(9.5)	
NET INCOME	15.3	12.5	22%
EPS	1.93	1.89	2%
AVERAGE SHARES	7,950	6,620	20%

On a reported basis net sales of \$251.7 million were 29% ahead of last year.

Since CalComp was only consolidated for one quarter in the prior period, the sales increase on a pro forma basis amounted to 17% versus the 29% reported. This was essentially in line with our plan.

Pre-tax operating income increased to \$28.4 million or 11.3% of sales compared to 9.8% of sales in the prior period. The improved margin reflected stronger performance in both the government and computer graphics markets. The gain in pre-tax margins was achieved despite the effect of lower sales value on CalComp export sales due to the strengthened U.S. Dollar.

Net income of \$15.3 million reflected lower royalties and interest income and also balance sheet translation losses for foreign currencies of \$1,022,000 which are shown in other expenses.

At the bottom line therefore, net income increased 22%, while EPS of \$1.93 per share was up only 2% due to 20% higher shares outstanding as I mentioned a moment ago.

SANDERS ASSOCIATES, INC. BACKLOG			
(\$ MILLIONS)	APR 1981	JULY 1980	APR 1980
GOVERNMENT SYSTEMS & PRODUCTS	176.8	162.4	180.8
GRAPHIC SYSTEMS & PRODUCTS	77.5	77.7	43.6
TOTAL	254.3	240.1	224.2

Turning briefly to the backlog position—the healthy order levels reported at year-end is continuing with backlog at the end of April amounting to \$254.0 million compared with \$240.0 million at year-end and \$224.0 last year.

The government systems backlog reflects strong orders in countermeasures and signal intelligence. In graphic systems orders for plotters and interactive graphic systems are also running ahead of last year.

SANDERS ASSOCIATES, INC. BALANCE SHEET APRIL 24, 1981		
(\$ MILLIONS)	4/24/81	7/25/80
CASH & SHORT TERM INVESTMENTS	9.8	27.6
OTHER CURRENT ASSETS	163.6	119.6
PROPERTY, PLANT & EQUIPMENT	57.3	53.7
GOODWILL	32.4	32.9
OTHER ASSETS & INVESTMENTS	3.2	1.2
TOTAL	256.2	235.0
CURRENT LIABILITIES	67.5	77.9
LONG TERM DEBT	25.1	26.8
STOCKHOLDERS' EQUITY	143.6	130.5
TOTAL	256.2	235.0
WORKING CAPITAL	75.8	69.3
DEBT TO TOTAL CAPITAL RATIO	15.3%	18.1%

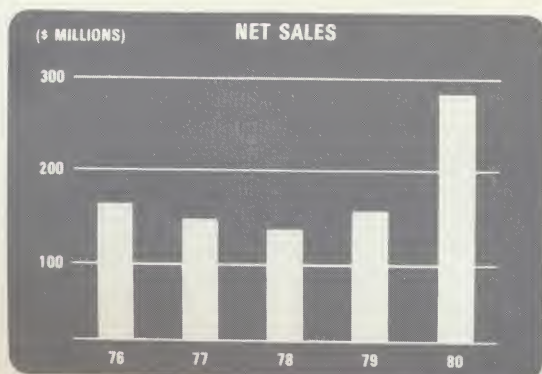
From a balance sheet standpoint we continue to look very sound.

Cash of \$9.8 million at the end of the third quarter was down from year-end reflecting additional investments made in working capital and capital equipment due to the higher operating level in all areas.

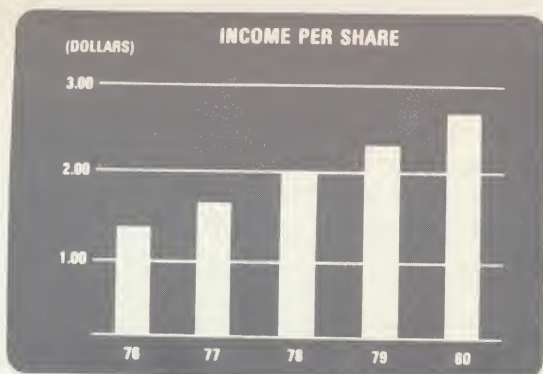
The goodwill from the CalComp acquisition amounts to \$32.4 million and is being amortized over 40 years. The tax benefit of CalComp's loss carryforward of about \$16.0 million is not shown on the balance sheet. This will further reduce goodwill as profits are earned by CalComp.

Long term debt of \$25.1 million includes about \$17 million of convertible debt which is convertible at prices close to the current stock price. Our debt to capital ratio of 15.3% continued to decline from year-end and is well below our target range of 30%. If the convertible debt is counted as equity, our debt ratio would be approximately 5%, which of course is quite conservative.

The excellent 1980 progress and nine months results represent a continuation of some good trends.

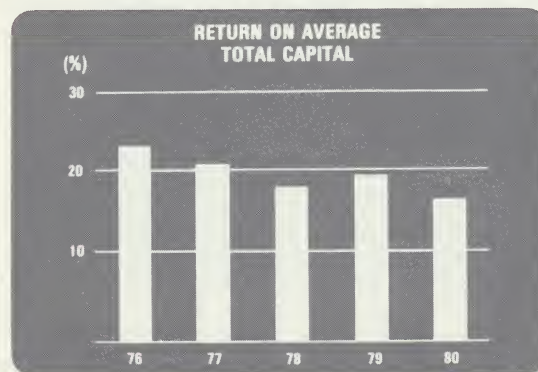


Sales growth is beginning to reflect the results of managements efforts—with a good upward trend which began in 1979 and is expected to continue.

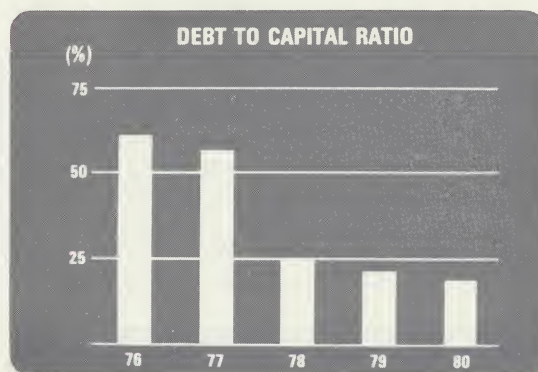


The earnings per share trend reflects the steady improvement made in profitability. 1980 marked

another year of increased earnings from continuing operations. This favorable trend will also continue in 1981. For the 5-year period since 1975, earnings per share have grown at a compound rate of 16 percent.



After tax return on total capital continued at a healthy level, averaging 18% over the recent 5 year period. This places us in the 1st quartile of 60 electronics companies surveyed for this period.



Our debt-to-capital ratio continued the favorable trend of the past several years and together with our strong cash position is adequate to finance our planned growth.

Ladies and Gentlemen, that completes the Financial Review. I'll turn it over to Jack now for a review of company activities and the outlook for the future.

Ladies and Gentlemen, it is a pleasure to be here today to bring you up to date on the progress we have made at Sanders and our outlook for the future.



Sanders activities today and in the 1980's will continue to be characterized by high technology products serving growing markets.

In the past Sanders has been particularly noted for its role in defense electronics or electronic warfare. Last year, following a carefully planned strategy, we completed a series of management actions which also established ourselves as a major supplier of computer graphic products and systems. This new market area complements our traditional defense business and is expected to contribute significantly to increased growth in sales and earnings.

MAJOR MARKETS

- GOVERNMENT SYSTEMS AND PRODUCTS
- GRAPHIC SYSTEMS AND PRODUCTS

Our company activities are therefore now segmented into two major market areas; Government Systems and Products, and Graphic Systems and Products.

GOVERNMENT SYSTEMS AND PRODUCTS

- DEFENSE ELECTRONICS
- COMPONENT PRODUCTS
- INTERNATIONAL SYSTEMS

In our traditional market area of government systems and products, our major markets are Defense Electronics, Component Products, and International Systems, a newer activity.

The defense electronics area is the largest of these. As you know, for many years we have maintained a strong reputation for technical innovation in the electronic warfare area. In addition, we are a leader in several other submarkets.

I think it is worth mentioning here that our present mix of R&D, preproduction and production programs in defense electronics is well balanced. We expect several important R&D and preproduction programs to make the transition to full scale production in the latter part of 1981 and 1982, with production on several other programs continuing at high levels. I will get into this a little more later on.

GRAPHIC SYSTEMS AND PRODUCTS (COMPUTER GRAPHICS)

GROWING MARKET

CALCOMP LEADING SUPPLIER

- PLOTTERS
- DIGITIZERS

SANDERS LEADING SUPPLIER

- GRAPHIC DISPLAYS

Now, our other and new major market area, is Graphic Systems and Products or "Computer Graphics".

Our position in this market has been significantly increased as a result of the CalComp and Talos acquisitions which were completed in 1980. These

activities together with our graphic display business establish Sanders as a leading supplier in the fast growing computer graphics market.

The acquisition of CalComp and the related acquisition of Talos, represent the fulfillment of a strategy initiated two years ago to broaden Sanders participation in growth markets. Both acquisitions met our requirements for established records of growth in areas of related technology.

Computer graphics products and systems are forecast to be one of the fastest growing markets of the 1980's. Systems for computer-aided design and computer-aided manufacturing applications, or "CAD/CAM" are gaining increasing acceptance as hardware costs decline, application software becomes more effective, and productivity improvements from the automation of expensive manual design and drafting procedures are demonstrated.

The CalComp and Talos product lines, which include graphic plotters, digitizers and interactive graphic systems, combined with Sanders existing graphic display business, give us a unique position as a supplier of essential peripheral products as well as turnkey systems in this very exciting market.

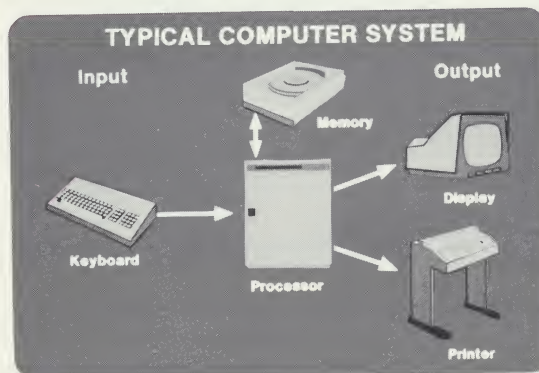
With that background I would now like to briefly review our position in each of these areas which I think will bring home to you the reasons for our confidence in the future.

GRAPHIC SYSTEMS AND PRODUCTS (COMPUTER GRAPHICS)

First, In Computer Graphics—

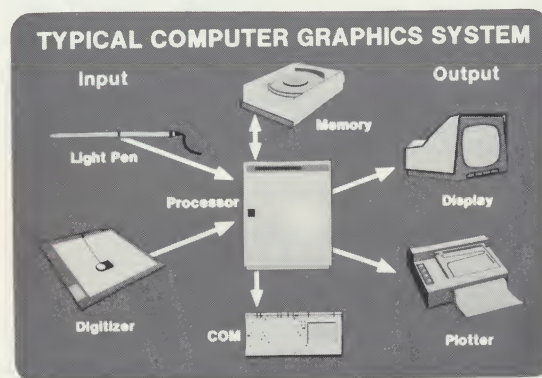
As was mentioned earlier, computer graphics sales last year amounted to 42% of total sales although CalComp operating results were consolidated for only nine months of the fiscal year.

Let me explain what we mean by "Computer Graphics" and exactly where Sanders now fits in this large market.



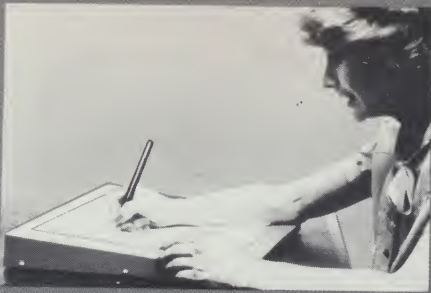
As shown on the slide, the basic elements of most general purpose computer systems consist of some form of input device for entering data into the system, a processor and memory for manipulating and storing the data, and some form of output device to display the resulting information.

The majority of computer systems in use today are designed to handle alphanumeric data, that is, alphabetical characters and numbers. The input device is usually a typewriter-style keyboard, and the output devices are usually character printers or television-like displays.



A computer system designed to handle graphic data, that is, drawings, charts, maps and graphs, differs mainly in the types of input and output devices used and in the software or programs that tell the computer what to do. Particularly in its application to CAD/CAM, it features interactivity between the man and machine.

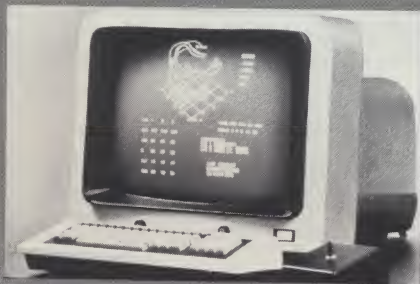
4110 DIGITIZER



The input device is often a light pen operating with a cathode ray tube or a digitizer, as shown above. A digitizer may be thought of as an electronic drawing board used to convert graphic data into digital form that can be handled by a computer.

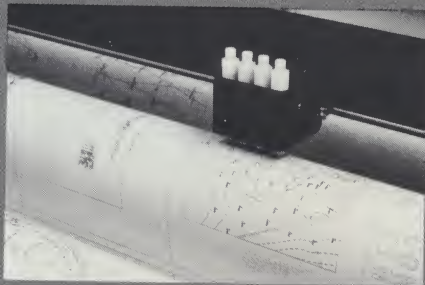
Once the data has been entered and processed by the computer, the output may be presented in a variety of ways.

GRAPHIC DISPLAY



On the screen of a graphic display.

PEN ON PAPER PLOT



On paper or mylar by use of a plotter.

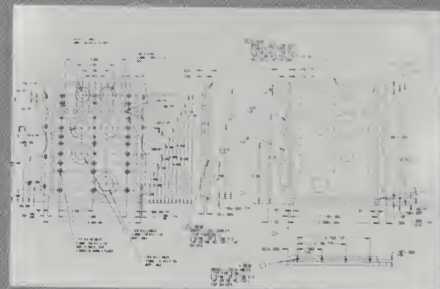
1681 GRAPHICS COM



Or on film by use of a computer-output-microfilm, or COM, device.

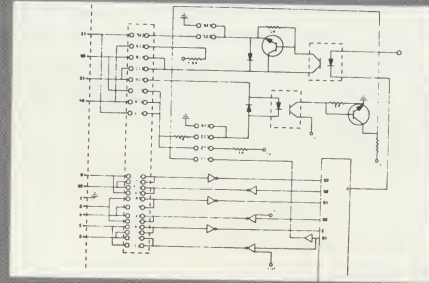
Here are some examples of typical graphic output.

DRAWING OF MECHANICAL PART



An engineering drawing of a mechanical part.

ELECTRICAL SCHEMATIC DRAWING



An electrical schematic diagram.

HOUSING TRACT



A map of a housing tract.

Our position as a supplier of many of the products I have described is very strong. In fact, I believe we have the broadest product line of any supplier.

SANDERS GRAPHICS SYSTEMS AND PRODUCTS

- Pen and Ink Plotters
- Electrostatic Printer/Plotters
- Graphic Com
- Graphic Displays
- Digitizers
- Interactive Graphic Systems

We are the number one manufacturer of pen and ink plotters. We are an important supplier of electrostatic plotters and graphic COM devices. We are one of the leading suppliers of graphic displays and digitizers. And we have achieved significant initial penetration in the market for complete interactive graphic systems used in computer-aided design.

1065 DRUM PLOTTER



Let me just briefly familiarize you with some of these products.

The model 1065 drum plotter is the latest in the long line of CalComp's drum plotters. It is 72 inches wide, the widest available in the market. It is a remarkable descendent of CalComp's first drum plotters.

970 BELTBED PLOTTER



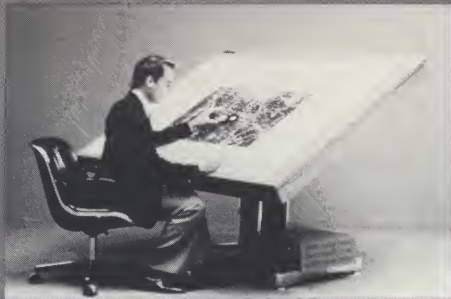
The 970 beltbed plotter is 52 inches wide, a descendent of the highly successful 36-inch 970 plotter introduced in 1975. The new 970 will plot a drawing up to 52 x 81 inches. These two new plotters permit the preparation of large drawings which previously could be made only on a much more expensive flatbed plotter.

5105 ELECTROSTATIC PLOTTER



A major accomplishment in 1980 was the redesign and initial manufacture of the line of electrostatic plotters CalComp acquired the year before from Gould. Electrostatic plotters employ a xerographic type of technology to transfer the plot to the paper media. CalComp has modernized the electronic design and computer interfaces, thus offering a family of high-performance electrostatic plotters that provide a complement to the traditional pen and ink product line. New products and new capabilities will be introduced this year, including wider plotters with the capability to plot on clear film. This gives us the capability of making reproducible copies. Other suppliers do not now have this capability without modification of their machines, and we believe this important advantage will lead to significant market penetration.

8602 DIGITIZER



The acquisition of Talos systems has further broadened our line of peripheral products for the computer graphics market. The Talos product line represents the most complete line of digitizers in the industry. Digitizers are found in almost every computer-aided design system and are also used by geologists, and medical and environmental specialists.

GRAPHIC 7



Sanders Graphic 7 refresh stroke display system is the basis for many high performance systems used in air traffic control, computer-aided design and simulation and training applications. Sanders has been marketing the Graphic 7 primarily to government agencies and a few OEMs. CalComp, through its worldwide sales organization, will now expand the marketing efforts directly to end-users. We expect to significantly increase the product's share of market.

GRAPHIC 8



During 1980 we introduced our new refresh raster color graphic display system, the Graphic 8. This new system is compatible with the Graphic 7 and includes high resolution, dynamic display updating, and 256 simultaneous colors, features previously unavailable in any raster display system. We anticipate good market penetration with this new product and have already been successful in winning some important systems contracts.

IBM 3250



In the custom display area our graphic display production continues to grow. We have received orders for more than 70 million dollars from IBM for production of their model 3250 graphic display system used in computer-aided design and other applications and the market for this system is still growing.

(ETABS)

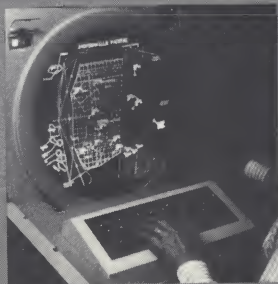
FAA



In the command and control graphic display area, excellent production potential exists for a Sanders developed display system to assist air traffic controllers tracking the identity, route, and assigned altitudes of aircraft.

NAVY

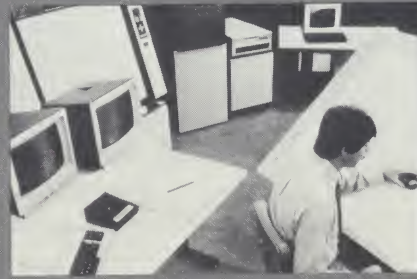
Four Color
Air Traffic
Control System



We are also the system's prime contractor for the
18 Navy's fleet area control and surveillance system to

be installed at various sites in the United States. It is this nation's first operational use of four color graphic displays in an air traffic control system application.

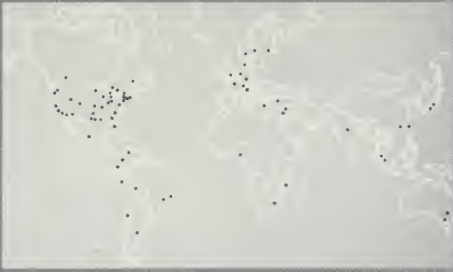
INTERACTIVE GRAPHIC SYSTEM



Because of the promising outlook for growth in the computer-aided design market, we have begun to aggressively market our own complete interactive graphic systems for computer-aided design. Such systems generally are comprised of a variety of hardware devices, including digitizers, alphanumeric and graphic displays, computers, and output devices such as pen and ink or electrostatic plotters. In addition, specialized software is provided for a variety of applications, particularly mechanical, electrical and architectural drafting, process plant design, and mapping.

CalComp is a relative newcomer to this growing market, but has had initial marketing success in the architectural, engineering and construction fields. Calcomp's family of interactive graphic systems include several models which span the broad range of user requirements from high end to very low-cost systems. These systems significantly increase design and drafting efficiency. In fact, users claim a 7 (to 10) to 1 productivity improvement over former manual methods and in many cases much more.

CALCOMP WORLDWIDE SALES & SERVICE



A most important asset in our plan to increase our market share is the CalComp worldwide sales and service network. This organization currently comprises about 800 persons worldwide. Activities presently cover 43 countries around the world. Our geographic coverage was recently extended through formation of a joint venture in Mexico and the establishment of a branch office in Athens to participate in growing markets for plotters used in oil and gas exploration.

GROWTH MARKET

- Declining Cost of Computers
- Shortage of Skilled Manpower
- Demand for Increased Productivity
- 5 Year Growth from \$1 Billion to \$4.5 Billion
- Annual Growth Rate 35%

Summing up Now—

The market for computer graphics has been growing very rapidly, fueled by the declining cost of computer processing power and memory, a shortage of skilled draftsmen and engineers, and a competitive demand for increased productivity.

A recent market study by International Data Corp. predicts that worldwide revenues from computer graphics products will swell from \$1 billion in 1979 to more than \$4.5 billion in 1984, a compound annual growth rate of 35%; there are other estimates which call for even greater long term growth. . . This is why Sanders chose to expand in the area of computer graphics.

GOVERNMENT SYSTEMS AND PRODUCTS

Turning now to government systems and products, our other major market area—

Sanders has gained a worldwide reputation for advanced electronic systems and components for defense applications. Our systems are used by all branches of the U.S. Armed Services and many foreign countries.

DEFENSE ELECTRONICS & COMPONENTS

- COUNTERMEASURES
- SIGNAL PROCESSING
- OCEAN SURVEILLANCE AND ASW
- AUTOMATIC TEST EQUIPMENT
- AIR DEFENSE
- TRAINING AND SIMULATION
- FLEXPRINT AND MICROWAVE COMPONENTS

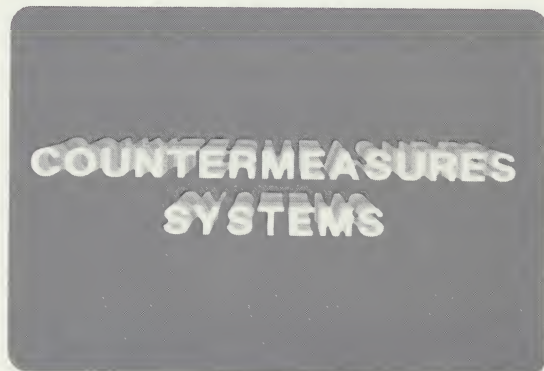
This is a list of the areas we participate in. As you can see we are in the mainstream of electronic warfare and other defense electronics markets which are believed to have the fastest growth rate.

As you are aware, Congress was already proceeding to increase the defense budget as a whole. And the new administration is dedicated to the conviction that defense spending must be set at increasing levels of real growth in order to respond to the international situation.

It is important to understand that many areas of the defense budget will be competing for these increased funds and that the higher budget does not automatically create a generalized bonanza for electronic warfare.

As far as Sanders is concerned in addition to the generally good outlook we are very fortunately positioned in that much of our expected revenues over the next few years will be derived from programs that are already underway at various stages of development and production or are included in the supplemental budgets.

Now let me briefly review some of the important programs at Sanders which are underway in these areas.



Countermeasures systems continue to be our largest activity and Sanders is recognized throughout the world as an innovator and manufacturer of reliable and effective aircraft self protection systems.

These systems, which are installed aboard many types of military aircraft and helicopters, protect the aircraft and pilot from various kinds of hostile weapons.

Simply stated, countermeasures equipment sends out signals which deceive or jam the fire control systems for guided missiles or guns intended to shoot down our aircraft. This is an area of increasing interest today because of the variety and accuracy of new weapons being developed by the Soviets.

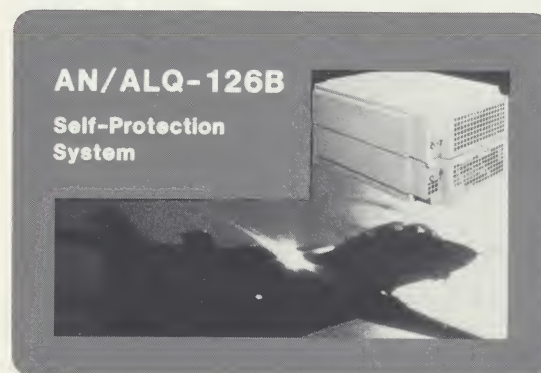
Annual sales in the self-protect countermeasures area are currently running about \$70 million a year and are expected to be one of our fastest growing areas.

COUNTERMEASURES SYSTEMS

**Electronic Countermeasures (ECM)
Expendables
Infrared Counter Measures (IRCM)
Electro-Optical System (EO)**

Our broad participation in this market includes electronic countermeasures, or ECM, for deceiving radar guided missiles; specialized expendable electro-magnetic devices; infrared countermeasures, or IRCM, for jamming heat seeking missiles as well as electro-optical countermeasures to counter optically controlled weapons.

We have several development contracts as well as production programs underway in each of these segments.



In the electronic countermeasures or ECM systems area, Sanders continues as the dominant supplier of airborne ECM systems to the Navy, and our radar jammer, the ALQ-126A, is on board most Navy fighter and attack aircraft. The updated ALQ-126B is completing final test. Funding is expected to begin initial production within a few weeks.

The updated system will provide improved protection by incorporating advanced technology designed to counter new missile and anti-aircraft threats. This program will be an important source of future revenues for several years. We believe that in the early 1980's our ALQ-126B will be the most advanced programmable airborne ECM system in full scale production in the world.

AN/ALQ-137



We are a major supplier of ECM systems to the Air Force and are currently in production on our ALQ-137 for the Strategic Air Command's FB-111 aircraft and for the new EF-111 electronic warfare aircraft. A follow-on contract of over \$24 million was awarded earlier this year. A variant of the ALQ-137 is also planned for use on the EF-111 program.

Joint Venture

ASPJ

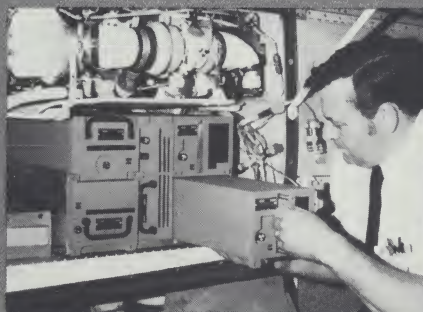
SANDERS-NORTHROP

Now the biggest single potential ECM program which you all have heard of is ASPJ, or the Airborne Self-Protection Jammer. ASPJ is slated to be the airborne electronic countermeasures system of the late 1980's and 1990's. The Sanders-Northrop joint venture team is one of two winning teams for the competitive first-phase development of ASPJ. It is a major tri-service program and is expected to exceed one billion dollars.

As you probably know the proposals from the two teams were submitted in February. A best and final proposal which will incorporate recommendations of the source selection committee is due around the end of June. After that we will just have to wait for a decision—which is expected to be made in late summer.

The Sanders-Northrop team is a strong one and we have marshalled our mutual expertise to assure success.

SANDERS-NORTHROP ASPJ SYSTEM



A mockup of the Sanders-Northrop system is shown above in a U.S. Navy F-14 aircraft.

ASPJ performance requirements call for a modular, programmable, computer-controlled ECM system capable of protecting U.S. and NATO fighter and attack aircraft against current and future hostile radar guided weapons systems. Its modular design will allow it to be used on a wide variety of aircraft, in both internal and external pod installations.

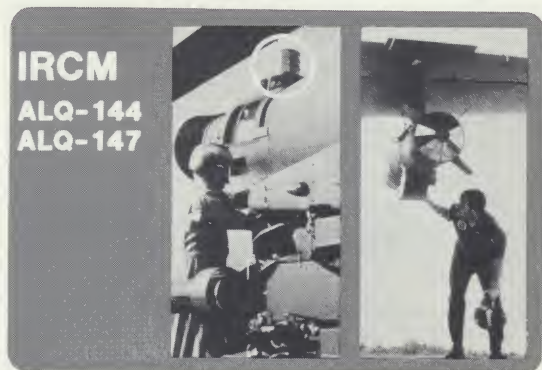
POET EXPENDABLE COUNTERMEASURES



In expendable countermeasures our successful efforts in advancing hybrid and microwave-integrated circuit technology have enabled us to deliver ECM in extremely compact packages. In addition, we are developing ECM systems for remotely piloted vehicles, drones and other small platforms.

The POET expendable jammer, shown above, was designed by Sanders and is currently in high volume production. An additional large multi-year procurement is expected for these systems.

Due to the excellent test results for this system, engineering development for new versions of the POET was initiated in 1980 with several additional types of decoys also planned for development.



In infrared countermeasures, or IRCM, we are the acknowledged leader with a variety of systems which defeat heat-seeking missiles.

Our largest IRCM production program is the ALQ-144 which has been designated by the Army as their standard helicopter self protection system. A competitive award of \$6.5 million was recently received for the second production lot of ALQ-144 systems for U.S. Army and Marine Corps helicopters. We also produce the ALQ-147 for Army fixed wing aircraft. The outlook for additional use of IRCM is excellent with interest increasing by the Navy and Marine Corps and by other countries.



In electro-optical countermeasures our systems employ lasers to warn of enemy surveillance. Several classified programs are underway in this area and we can state that we anticipate growth in this aspect of our business.

SIGNAL PROCESSING SYSTEMS

Another area with very excellent growth prospects is signal processing systems. These are passive systems as opposed to the active ECM systems I just described.

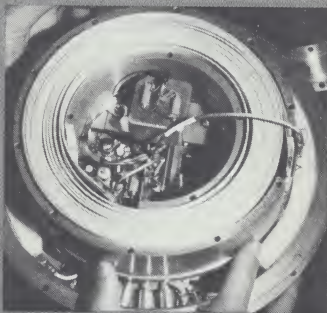
Passive systems receive electromagnetic signals and analyze them to extract information such as the nature of the threat, or its location.

For a number of years Sanders has been one of the leaders in signal acquisition, direction finding, and data management and display. Our signal acquisition and processing systems in their various forms cover signals from the acoustic region for ASW up through the infrared and optical frequencies and in significant areas of the radio frequency spectrum. Our systems are currently used on all types of platforms such as aircraft, ships, submarines and in both fixed and mobile ground-based applications.

Here again security constraints have recently been imposed on us which limit the extent of the information I can convey to you about these programs.

However, I can say that this is an area in which we are seeing some very good progress. We have recently received development contracts in new areas and the traditional programs are continuing strongly in repeat and updated production.

**COMMAND,
CONTROL AND
COMMUNICATIONS
COUNTERMEASURES**



The outlook is also very good in related areas such as C³ countermeasures where Sanders has emerged as the leading company in the industry. As a result of several years of company-funded research and development, Sanders won the first major new DoD contract initiated in this field in several years. This important new program is expected to have significant production potential in 1981 and beyond. Our technical leadership places us in an advantageous position to compete for several other major emerging programs in the C³ countermeasures area.

This is not a new field to Sanders. We have had very sizeable production contracts prior to and during the Vietnam War period.

**OCEAN SURVEILLANCE
and ASW**

Looking now to ocean surveillance and antisubmarine warfare systems, our products include underwater sensors which use acoustic techniques for detection of submarines and sophisticated computers which process and analyze the acoustic data.

AN/OL-82/AYS

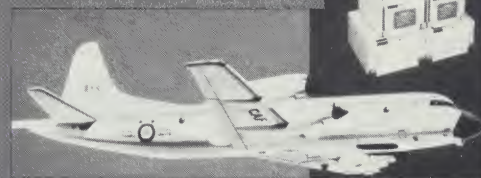
**Acoustic Data Processor
(S-3A)**



In the airborne portion of our ASW business, it is planned that our acoustic data processing system the OL-82 will be updated as part of a general improvement program for the Navy's carrier-based S-3A ASW aircraft. We have just received a follow-on contract for approximately \$15 million for the development phase of the update.

(CP-140)

**Acoustic Data Processor
AN/OL-5004/AYS**



This is our newer acoustic processing system which is an outgrowth of the OL-82 and is employed on the Canadian CP-140 patrol aircraft.

(RDSS)

**Rapidly Deployable
Surveillance System**



Sanders has already received over 30 million dollars in awards to develop the Navy's rapidly deployable

surveillance system or RDSS. This is an air droppable, self-mooring system for ocean surveillance.

We are continuing to produce very successful test results on this system. The Navy has budgeted additional funds for full scale engineering development which we will begin in 1981. This program is one which was competed very heavily with very difficult design to cost and technical and manufacturing requirements.

E.W. AUTOMATIC TEST EQUIPMENT

In the automatic test equipment area over the past 20 years Sanders has produced a wide range of automatic test systems for electronic warfare equipment.

AN/USM-406

Organizational
Level Test Set



One present production program is for the Sanders USM 406 which has been designated as the standard flight line electronic warfare test set for all Navy and Marine fighter and attack aircraft. This same system is used by the Air Force for test of electronic warfare systems aboard Strategic Air Command FB-111 aircraft.

USM 464 FLIGHT LINE TESTER



As you know, a major competitive award was received this month from the Air Force for the USM-464 computerized flight line tester.

The award has an initial value of \$28.2 million for design and development of test equipment for checkout of airborne electronic countermeasures (ECM) sets. The contract includes provisions under which the Air Force can order additional systems which could bring the total value of the contract to more than \$200.0 million. Under the initial award Sanders will build four preproduction models of AN/USM 464 countermeasure test sets and four preproduction ALQ-119 ECM program test sets.

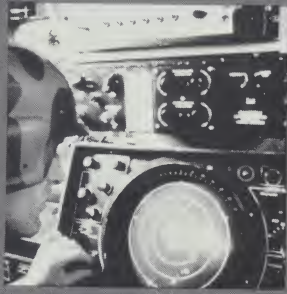
The long term opportunities in the automatic test equipment market appear excellent as requirements are developing for improved test systems to handle more advanced avionics and ECM systems.

AIR DEFENSE RADAR

In Air Defense,

(LAADS)

Low Altitude Air Defense System



Production of our low altitude air defense system, or LAADS, is continuing. LAADS is recognized throughout the world as the radar with the best ability to detect low-flying aircraft with low radar cross section in a background of very high ground clutter. It automatically provides vital data to the operators of anti-aircraft weapons.

(FAAR)

Forward Area Alerting Radar



Our forward area alerting radar, or FAAR, an earlier version of the LAADS systems will be used well into the 1990's by the U.S. Army. We are currently conducting studies examining its use in an advanced air defense command and control system application.

AN/ALQ-156

Missile Warning Radar System



Sanders ALQ-156 missile warning radar for the Army protects helicopters and fixed wing aircraft by detecting enemy missiles and then triggering the release of an expendable countermeasure decoy. We have successfully completed development and testing of the helicopter version and expect to begin production early in FY 82.

TRAINING and SIMULATION SYSTEMS

One of the fastest growing segments of the defense markets is training and simulation. These systems significantly reduce the cost of training military personnel. Our position in this market combines our experience in computer graphic displays, software and electronic systems.

In addition to maintaining our position as the world's leading supplier of displays for pilot flight training we are targeting to increase our role as a prime contractor for turnkey systems.

PATRIOT TRAINER



We are completing development of the computerized training system for the Army's Patriot missile air defense system and expect to begin production next year. The computerized graphic training system will be used to train Army personnel under simulated battle conditions.

(HS748)

**Australian
E.W. Trainer**



In another training program in the international arena we are the prime contractor for a complete electronic warfare airborne training system for the Royal Australian Navy.

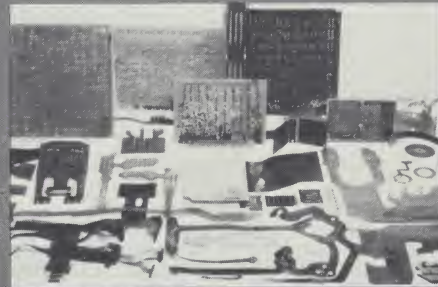
COMPONENT PRODUCTS

**Flexprint
Microwave**

In our component products business our two major product lines are flexprint and multilayer printed circuitry and microwave components.

In addition to successful performance on critical internal requirements the Component Products Group has significantly expanded external sales, gaining a strong position in several markets which should provide additional future sources of revenue for Sanders.

FLEXPRINT CIRCUIT ASSEMBLIES



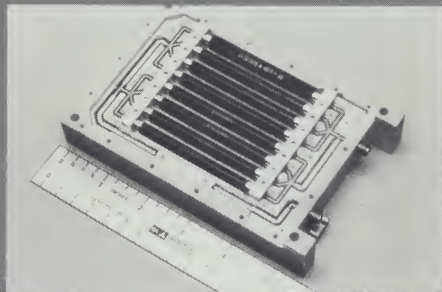
In the flexprint area, production is underway on the DRAGON, TOW, and TOMAHAWK cruise missile programs for which we have developed advanced interconnect systems. All of these programs have excellent multi-year follow-on potential.

MICROWAVE DEVICES & SUBSYSTEMS



In microwave components and subsystems areas, sales are reflecting increases in a variety of areas including production of advanced microwave switches and devices for use in communications and electronic warfare applications.

SWITCHABLE BAND PASS FILTER

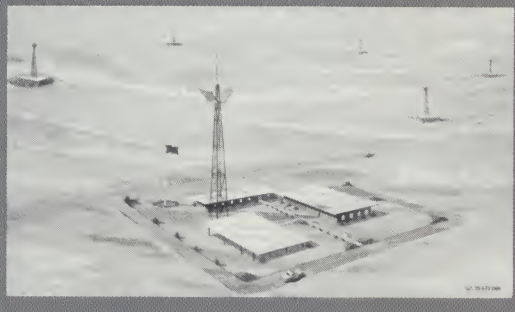


This very complex high frequency switchable bandpass filter was developed for use in a subsurface information gathering system.

INTERNATIONAL SYSTEMS

Finally, in our newer international systems area—

SAUDI HIGHWAY PROGRAM



In 1979 we were awarded a \$51 million contract with the Ministry of Interior of Saudi Arabia to assist in the development of a long range program to regulate traffic on the Kingdom's highways. Sanders is providing a wide range of technical assistance to the Ministry including design facilities and of fixed and mobile communications and assistance in the overall management of their program.

The program is proceeding more slowly than we had anticipated due to delays by the Kingdom in the selection of final design configuration. To protect our position we have agreed with the Kingdom to limit our efforts at the present time to completion of the design work and some study efforts which will reduce the contract to about \$23 million. This effort will be completed in 1982 with the remaining effort called for in the original contract to be contracted for separately in the future.

We continue to feel that the Mid East and particularly Saudi Arabia represents an increasing market in electronics and other areas where Sanders has experience. We are continuing to evaluate other opportunities in this area.

GOVERNMENT SYSTEMS AND PRODUCTS

DEFENSE ELECTRONICS

- BROAD PARTICIPATION
- FAST GROWING SEGMENTS
- GOOD PROGRAM MIX
- FAVORABLE DEFENSE BUDGET

COMPONENT PRODUCTS GROWING

INTERNATIONAL SYSTEMS

We currently have a good mix of development and production programs and our outlook for the next few years is very good. With the current favorable outlook for defense spending our position could be further enhanced.

Our component products areas are benefiting from the accelerated emphasis in industry on high technology. We expect a continuation of increased external sales in this area.

In the international systems market we have a very good opportunity to expand our position.

Summary

Now I would like to summarize. I believe that with the overview just presented, a statement of Sanders goals will be the best way to accomplish that.

SANDERS ASSOCIATES, INC.

GOALS

- EXPAND PARTICIPATION IN COMPUTER GRAPHICS
- MAINTAIN STRONG POSITION IN DEFENSE ELECTRONICS
- CONTINUE ABOVE AVERAGE PROFITABILITY
- COMPUTER GRAPHICS GROWTH 25%/YEAR
- DEFENSE ELECTRONICS GROWTH 15%—20%/YEAR

In computer graphics, the combined technical, product, and marketing capabilities of Sanders and CalComp has resulted in a strong competitive entry in a new fast growing area. We are confident of our position in traditional areas and are targeting to gain a larger market share in others. Specific areas of emphasis are interactive graphic systems, electrostatic plotters and the end-user graphic display market.

In defense electronics, particularly electronic warfare, we are a world leader. I think we are a strong, competitor because we understand our customers requirements earlier and better than our competitors and we have the technology to provide a solution to their needs. We plan to maintain this leadership role.

Our pre-tax margins and return on capital in our defense business has been at the top end of about 60 of the leading electronics companies. We have already received good profit contribution from CalComp and are targeting further improvement, to be one of the top performing companies in computer graphics as well.

In the next several years we are targeting for a 25% growth rate in computer graphics—and 15% to 20% or more in defense electronics.

That concludes my remarks. If you have any questions, I will be happy to answer them.

NEWS

RELEASE



FROM SANDERS ASSOCIATES, INC., Daniel Webster Highway, South, Nashua, New Hampshire 03060

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(603) 885-2817/Nights: (603) 673-5432

FROM: Jim Joyce
(603) 885-2810

FOR RELEASE: FRIDAY,
JULY 31, 1981

SUMMARY: Sanders to supply color displays for two Air Force programs under \$4.1 million in contracts from IBM's Federal Systems Division.

NASHUA, N.H. -- Sanders Associates, Inc. has been awarded \$4.1 million in contracts from IBM's Federal Systems Division to provide Graphic 8 color display terminals, support software and services for two Air Force Programs: Data Systems Modernization (DSM) and the Global Positioning System (GPS).

The units will be installed at the Air Force's Satellite Control facility at Sunnyvale, Ca., as well as the GPS master control station. Called mission consoles, the Graphic 8's are high resolution color raster graphics that will include keyboards, positional entry devices and hard copy machines.

(MORE)

CREATING NEW DIRECTIONS IN ELECTRONICS

The Satellite Control facility's centralized data system is being modernized by the Air Force to increase system capacity and to provide more sophisticated satellite control services for more complex spacecraft. The Sanders graphic displays, which will perform with IBM central computers, will depict various graphic and alphanumeric data required to control and communicate with the satellites.

GPS is an 18-satellite system in an 11,000-mile orbit, circling the earth every 12 hours. It is designed to give worldwide navigation coverage day or night in all weather conditions. GPS users such as aircraft pilots, ship captains, or field combat soldiers, using a specially-built, passive receiver can get exact, three-dimensional position and velocity data using four or more GPS satellites. Each satellite radiates a continuous signal from a navigation unit which is updated via a computer-controlled ground station. Users compute position within 16 meters, velocity to 0.01 meters per second and absolute time within microseconds.

The Sanders graphics displays will perform with IBM's computers to handle the tracking, telemetry, command and communication functions of the system.

Sanders Associates is the leading producer of high performance refresh graphic display systems and the company's CalComp group is the world's largest producer of pen and ink graphic plotters. The New Hampshire based company reported sales of \$281 million in fiscal year 1980.

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